IPW

Docket No.: 50040-047 **PATENT**



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Customer Number: 20277
John LAMPL	:	Confirmation Number: 7250
Serial No.: 10/825,218	:	Group Art Unit: 3644
Filed: April 16, 2004	:	Examiner:

For: LIGHTWEIGHT AIRFOIL AND METHOD OF MANUFACTURING SAME

REQUEST FOR CORRECTED FILING RECEIPT

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Commissioner for Patents
P.O. Box 1450
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Sir:

Attached is a copy of the Filing Receipt received from the U.S. Patent and Trademark Office in the above-referenced application. It is noted that the number of Independent Claims is incorrect. Attached is a copy of the Claims, which evidences that the number of Independent Claims should read: 4. It is requested that a corrected filing receipt be issued.

Respectfully submitted,

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SEP 01 2004 JC25

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APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY.DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/825,218	04/16/2004	3644	0.00	50040-047	4	35	3 (4)

CONFIRMATION NO. 7250

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FILING RECEIPT

OC000000013134839

Date Mailed: 07/01/2004

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

John Lampl, Residence Not Provided;

RECEIVED
JUL 6 2004
MW&E

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 07/01/2004

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Lightweight airfoil and method of manufacturing same

Preliminary Class

244

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Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

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What is claimed is:

1. A method of manufacturing a lightweight airfoil having a frame and a skin over the frame, comprising the steps of:

coring a sheet of support material;

attaching a skin material to the cored sheet of support material to form a laminate sheet of skin material and support material; and

defining an outer portion of the airfoil from the laminate sheet.

2. The method according to claim 1, wherein the airfoil defining step includes trimming excess material from the laminate sheet proximate an outer portion of the frame.

3. The method according to claim 1, further comprising a step of defining the frame in the support material.

4. The method according to claim 3, wherein the frame defining step includes compressing the support material proximate the defined frame.

5. The method according to claim 4, wherein the compressing of the support material forms channels on only a first major side of the support material, and

the skin material is attached to the second major side of the support material.

6. The method according to claim 3, wherein the frame defining step precedes the coring step.

7. The method according to claim 1, wherein the coring step defines an inside portion of the frame.

8. The method according to claim 7, wherein the skin material is attached to the frame using an adhesive glue.

9. The method according to claim 8, further comprising the step of applying the adhesive to the cored sheet of support material prior to the attaching step.

10. The method according to claim 1, wherein the skin material includes biaxial oriented polypropylene.

11. The method according to claim 1, wherein the support material includes expanded polystyrene sheet.

12. The method according to claim 1, wherein a single sheet of support material extends from said coring step to said airfoil defining step.

13. The method according to claim 1, wherein the airfoil has a thickness of about 2.0 mm to about 8.0 mm.

14. The method according to claim 13, wherein the airfoil has an area to weight ratio of 30 in^2/gram or more.

15. The method according to claim 1, wherein the airfoil has an area to weight ratio of 30 in^2/gram or more.

16. The method according to claim 1, wherein the skin material is rolled onto the support material to form the laminate sheet.

17. The method according to claim 1, wherein the airfoil defining step separates the airfoil from the laminate sheet.

18. The method according to claim 1, wherein a ratio of an area of the frame to an area defined by the frame is less than 0.10.

19. The method according to claim 1, wherein a ratio of an area of the frame to an area defined by the frame is less than 0.05.

20. A method of manufacturing a lightweight airfoil having a frame and a skin over the frame, comprising the steps of:

defining the frame by compressing the support material proximate the frame;

coring a sheet of support material;

applying an adhesive to at least one of the skin material and the support material;

attaching a skin material to the cored sheet of support material using the adhesive to form a laminate sheet of skin material and support material; and

defining an outer portion of the airfoil from the laminate sheet, wherein a single sheet of support material extends from said coring step to said airfoil defining step.

21. A lightweight airfoil, comprising

a frame; and

a skin attached to the frame, wherein the airfoil has an area to weight ratio of 30 in^2/gram or more.

22. The lightweight airfoil according to claim 21, wherein the frame is formed from a single sheet of expanded polystyrene.

23. The lightweight airfoil according to claim 22, wherein the skin includes biaxial oriented polypropylene.

24. The lightweight airfoil according to claim 21, wherein the frame has a thickness of about 2.0 mm to about 8.0 mm.

25. The lightweight airfoil according to claim 21, wherein the frame is attached to the skin with an adhesive glue.

26. The lightweight airfoil according to claim 21, wherein the frame is cored.

27. The lightweight airfoil according to claim 21, wherein the airfoil has an area to weight ratio of 30 in^2/gram or more.

28. The lightweight airfoil according to claim 21, wherein a ratio of an area of the frame to an area defined by the frame is less than 0.10.

29. The lightweight airfoil according to claim 21, wherein a ratio of an area of the frame to an area defined by the frame is less than 0.05.

30. A lightweight airfoil, comprising

a cored frame; and

a skin attached to the frame with an adhesive, wherein the frame is formed from a single sheet of expanded polystyrene.

31. The lightweight airfoil according to claim 30, wherein the airfoil has an area to weight ratio of 20 in^2/gram or more.

32. The lightweight airfoil according to claim 30, wherein the airfoil has an area to weight ratio of 30 in^2/gram or more.

33. The lightweight airfoil according to claim 30, wherein a ratio of an area of the frame to an area defined by the frame is less than 0.10.

34. The lightweight airfoil according to claim 30, wherein a ratio of an area of the frame to an area defined by the frame is less than 0.05.

35. The lightweight airfoil according to claim 30, wherein the frame has a thickness of about 2.0 to about 8.0.